DOCUMENT RESUME

ED 248 261 TM 840 562

AUTHOR Gonter, Martha A.; Hoemann, H.
TITLE Deaf Children's Developing Competencies in Manual English and American Sign Language.
PUB DATE [81]
NOTE 14p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age Differences; *American Sign Language; Communication Skills; *Deafness; Difficulty Level; Elementary Education; Grammar; *Language Tests; *Manual Communication; *Test Construction; Testing Problems

ABSTRACT

Language tests were administered by videotape to 27 deaf children taught to sign English. The tests, one in manual English (ME) and the other in American Sign Language (ASL) each included twelve grammatical distinctions: two aspects of adjectival modification (opposition and ordering), two types of pluralization (is/are and indicative in ME, dual indexing and duplication in ASL), past and future tenses, passive voice, possessive pronouns, negation, conjunction, preposition, and direct versus indirect objects. Performance improved on both tests from ages 5 to 12. Subtests which measured grammatical distinctions known to be difficult for young children, such as direct versus indirect objects, produced many errors on both tests. Sensitivity to age-related differences and the relative difficulty of the various subtests support this approach to the measurement of deaf children's concurrent development of competence in English and ASL. (Author/BW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED248261

Deaf Children's Developing Competencies in
Manual English and American Sign Language

M. GONTER and H. HOEMANN
Bowling Green State University

Language tests were administered by videotape to 27 deaf children taught to sign English. The tests, one in manual English and the other in American Sign Language, each included twelve grammatical distinctions. Performance improved on both tests from ages five to twelve. Subtests which measured grammatical distinctions known to be difficult for young children, such as direct versus indirect objects, produced many errors on both tests. Sensitivity to age-related differences and the relative difficulty of the various subtests support this approach to the measurement of deaf children's concurrent development of competence in English and ASL.

DRAFT: PLEASE DO NOT QUOTE WITHOUT PERMISSION OF THE AUTHOR

TM 810 522

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M.A. Gonter

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Deaf Children's Developing Competencies in Manual English and American Sign Language

M. GONTER and H. HOEMANN
Bowling Green State University

Martha A. Gonter, Ph.D.
Dept. of Special Education
Bowling Green State University
Bowling Green, Ohio 43403

A test of deaf children's knowledge of English syntax has recently been developed (Quigley, Wilbur, Power, Montanelli, & Steinkamp, 1976), but no similar test exists for knowledge of American Sign Language (ASL). A means for measuring deaf children's ASL competence is clearly needed both for educational placement and programming, and for a general understanding of deaf children's developing linguistic and communicative competencies (Meadow, 1978). Especially useful would be comparable measures of deaf children's relative competencies in English and in ASL.

During the last ten years, a majority of schools for the deaf have adopted language intervention systems such as Signing Exact English (Gustason, Pfetzing, & Zawolkow, 1980) through which teachers and pupils can manually encode English. If deaf children who have been instructed through manual English (ME) have also learned American Sign Language, it should be possible to observe their developing ME and ASL competencies using the common visual/manual modality.

To exploit this opportunity, tests in ASL and ME were patterned after the Imitation, Comprehension, Production (ICP) measure developed by Fraser, Bellugi, & Brown (1963). A manual English version of the ICP test had been devised for a previous comparison of deaf and hearing youngsters (Gonter, 1976). Only the imitation format was used in the present study because the earlier study had demonstrated reliable individual differences in deaf children's ability to imitate signed sentences. Also, the Comprehension and Production measures were

judged to be noncomparable and to provide insignificant information beyond that obtained from Imitation performance.

The aspects of language measured by the two forms of this test do not exhaust the list of skills which could be said to constitute competence in either English or American Sign Language. But they do represent a broad sample of basic syntactic elements in both languages. Refinement of these measures is viewed as an initial effort toward a more comprehensive assessment of competencies in manual languages.

Method

Subjects

The subjects were 27 deaf pupils enrolled in an urban school for the deaf which served both day and residential pupils. A version of manual English had been in continuous use for the previous nine years. Since the purpose of the study was to explore individual differences in bilingual competence and to evaluate the adequacy of a language imitation test to measure them, no attempt was made to select a homogeneous group of deaf children. Instead, all available subjects in three age ranges, 5-6, 8-9, 11-12, participated in the study. It was later determined that the sample was composed of children who were severely to profoundly deaf (at least 70db loss ISO in the better ear) and whose age at the onset of deafness, with very few exceptions, was prior to age two. Eighteen subjects were day students while nine lived at the school during the week. One subject had deaf parents and deaf siblings, and four additional subjects had deaf siblings. All those with deaf relatives were day students.

Materials

Parallel test forms were designed to include similar linguistic content in both ME and ASL. Each test totaled forty-eight items, four items for each of twelve types of grammatical contrast. The twelve subtests examined: two aspects of adjectival modification (opposition and ordering), two types of pluralization (is/are and indicative in ME, dual indexing and duplication in ASL), past and future tenses, passive voice, possessive pronouns, negation, conjunction, preposition, and direct versus indirect objects. These were the same subtests used in the earlier manual English study with one exception. The mass/count contrast was eliminated since its status in ASL was questionable. In its place the second adjective subtest, involving incorporation in ASL, was devised.

Each item on the tests consisted of "minimal pair sentences" differing only on the grammatical feature to be examined, e.g., The deer is running./The deer are running. The ASL and ME tests were prerecorded on color videotapes. The model for the ASL test tape was a certified interpreter for the deaf. The model for the ME test tape was a certified teacher of the deaf who was experienced in the signing system utilized at the cooperating school.

Procedures

For the test sessions subjects were taken individually to a quiet room away from the mainstream of activity. Before each administration the experimenter, using simultaneous oral and manual communication, explained the experimental set-up and directions for the test. Then four warm-up item pairs were completed. For each test the subject was presented with one sentence (of a contrasted pair) at a time from the

prerecorded tape which included both audio and video aspects. The subject would then attempt to imitate the model's performance. Rate of presentation for the test items was regulated by the subject's speed of response to the previous item. Repetition of a stimulus was permitted if a subject gave indication that s/he had not seen it or specifically requested a second presentation. Fourteen subjects received the ASL test first and thirteen the ME test first. At least ten days separated the two test administrations.

Scoring

Subject's responses were recorded at the time of testing for scoring later. The scoring criteria were adapted from those outlined in the original ICP study (Fraser et al., 1963) with appropriate alterations to fit the version used here. Each sentence pair was scored as one item, with a zero assigned if either or both sentences contained errors. Two experimenters familiar with the elements of ME and ASL scored the tests. Infrequent discrepancies were resolved by a conference.

Results and Discussion

There was no significant effect of test administration sequence, i.e., ASL or ME first. Therefore, in all subsequent analyses results for each test have been collapsed disregarding sequence.

Summary data for ME and ASL tests by age level are presented in Table 1. An ANOVA was performed separately for each test. Performance improved significantly with age on both the ASL ($F = 5.997$, $df = 2, 24$, $p < .01$) and ME ($F = 7.467$, $df = 2, 24$, $p < .01$) tests.

The pattern of age group percentage scores suggests that initially the ASL competence of students as demonstrated by imitation performance was superior to their ME competence. However, during middle childhood the students' ability in ME appeared to develop more rapidly so that by age 11-12 their relative competence in both languages was more or less equal. Failure to attain perfect performance at the upper age level may reflect technical aspects of the test or its administration, e.g., a model for imitation who was not well known to the subjects.

This explanation is a plausible developmental interpretation of the results. However, it should be noted that, in the absence of normative data, the numerical scores obtained by subjects on each of the tests must be interpreted with considerable caution. The scores on the respective tests are not truly comparable since there is no way to determine the relative difficulty of each test independent of the subjects' performance; nor is there any means for determining an acceptable level of performance for each test at a given age level. With the collection of a considerable volume of normative data the interpretation of z scores would make possible such direct comparisons between the ASL and ME tests for use in describing either groups or individual subjects.

In spite of this limitation there are some conclusions that are warranted by the present data. In particular the study provides a test of the hypothesis that ASL and English (here ME) are conflicting language systems which compete with one another for dominance in individual deaf children. If ASL and ME competencies were incompatible one would expect negative correlations between performances on the two tests. To the contrary, the correlation between ASL and ME scores was

positive and significantly greater than zero ($r = .71$, $p < .01$). Since performance improved with age it was likely that the value of this correlation coefficient was influenced by the relationship between performance on both tests and chronological age. Therefore a partial correlation coefficient was calculated with age held constant, which also yielded a significant positive result ($r = .55$, $p < .01$). It would appear from these results that at least the acquisition of a manual version of English is not incompatiable with the concurrent development of competence in American Sign Language.

Each test examined twelve types of grammatical distinctions (see above). It was of interest to note which were the more difficult contrasts for the children to master and whether the patterns of difficulty were the same for the two languages. The frequency of errors on each subtest as a function of age level and test is presented in Table 2. It is apparent that some of the subtests were indeed more difficult than others. Contrasts of direct and indirect objects consistently produced the greatest number of errors across age levels and tests. Conversely, the possessive pronoun subtest was among the easiest for all groups. There were some noteworthy exceptions to the difficulty orderings between tests. Descriptive adjectival opposites produced the fewest number of errors of any ME subtest while it produced many errors in ASL (2-54). The reverse was true for past tense where the ME subtest was apparently more difficult than the ASL version (50-14). As a result of such discrepant performances the correlation between the ME and ASL orderings of grammatical subtests as measured by a Spearman Rank Order Correlation coefficient (.46) was not statistically significant.

The relative difficulty in ASL and ME of each of the grammatical distinctions represented in this investigation, as well as the rate and timing of their acquisition by deaf children, remain to be explored in greater depth and detail. The data presented here provide information that will be useful for developing more valid yet comparable instruments to assess grammatical competencies in ASL and ME, and for selecting appropriate age samples from which to obtain normative data on these tests.

Further refinement of the present instruments provides promise as a means of exploring and comparing various aspects of deaf children's developing language abilities. Present plans call for a refilming of both tests to improve upon the model execution of items that appeared, on the basis of these pilot data, to have been somewhat lacking in clarity. Additional corroboration of test content by expert adult signers will be sought. A means of partialling out the influence of the imitation format itself may be undertaken. Then data from a large number of subjects can be obtained using the new ME and ASL forms to provide a basis for establishing norms for both tests.

Two specific kinds of applications are anticipated ultimately for the ME and ASL tests. First, knowledge of the comparative ASL and ME competencies of specific groups of deaf children can be used to explore the prior social and educational variables that may have contributed to assessed levels; and to evaluate variables in the children's current linguistic environments that have potential to maintain or alter comparative competencies. Secondly, individual subject scores will permit the classification of deaf children into distinctive linguistic groups, e.g., ASL dominant, English dominant, competent in both English

and ASL, and not competent in either language. Such descriptive information concerning the linguistic status of deaf children will be useful for research purposes as investigators study the relationships between language and other variables, e.g., cognitive and social skills. It will also be valuable in selecting and evaluating educational interventions since proper accounting may be made of the language abilities that each deaf child would bring to a situation.

In summary, the main limitations of the present study lie with the videotaped models of the test items and with the restricted nature of the subject sample. Definitive conclusions regarding the developmental progression of relative competencies in ASL and ME must await further investigation. The contributions that the study makes to an understanding of deaf children's language include a disconfirmation of the hypothesis that concurrent development of ASL and English would be extremely difficult due to mutual interference. Also, the data provide useful information for planning subsequent studies, and encourage further refinement of the tests and their administation to a larger, more representative sample of deaf children.

Table 1

Means, Standard Deviations, and Percent Scores on ASL and ME Tests as a Function of Age

		ASL TEST			ME TESTS		
Age Level	N	Mean	SD	% Correct	Mean	SD	% Correct
5 - 6	8	31.3	4.87	66%	23.7	7.89	50%
8 - 9	10	35.6	4.95	74%	29.9	9.34	65%
11 - 12	9	38.4	2.24	80%	39.0	7.07	80%

Table 2

Subtest Errors on ASL and ME
Tests as a Function of Age

ASL Subtest	Age Level 5-6	8-9	11-12	Total
Negation	4	1	0	5
Possessive Pronouns	6	1	0	7
Preposition	3	6	1	10
Past Tense	5	5	4	14
Adjective Order	10	7	1	18
Conjunction	14	4	1	19
Plural (dual)	8	9	5	22
Plural (duplication)	15	5	3	23
Passive Voice	8	10	7	25
Future Tense	15	16	9	40
Adjective Opposites (incorporation)	14	20	20	54
Direct/Indirect Object	31	40	35	106

ME Subtest	5-6	8-9	11-12	Total
Adjective Opposites	2	0	0	2
Possessive Pronouns	3	2	0	5
Negation	7	2	0	9
Preposition	11	9	2	22
Conjunction	14	13	3	30
Future Tense	18	14	9	41
Adjective Order	20	18	9	47
Past Tense	20	19	11	50
Plural (is/are)	23	21	6	50
Passive Voice	22	20	8	50
Plural (indicative)	24	21	10	55
Direct/Indirect Object	30	38	27	95

References

Fraser, C., Bellugi, U., & Brown, R. Control of grammar in imitation, comprehension, and production. Journal of Verbal Learning and Verbal Behavior, 1963, 2, 121-135.

Gonter, M. A. Psycholinguistic development of syntactic features by young hearing subjects and deaf subjects using total communication. Unpublished doctoral dissertation, University of Nebraska, 1976.

Gustason, G., Pfetzing, D. & Zawolkow, E. Singing Exact English. 1980 Edition. Los Alamitos, CA: Modern Signs Press, 1980.

Meadow, K. The natural history of a research project: An illustration of methodological issues in research with deaf children. In L. Liben (Ed.), Deaf children: Developmental Perspectives. New York: Academic Press, 1978, 21-40.

Quigley, S. P., Wilbur, R. B., Power, D. J., Monanelli, D. S., & Steinkamp, M. W. Syntactic structures in the language of deaf children. Urbana, IL: Institute for Child Behavior and Development, University of Illinois, 1976.

6/H